

Serial No.: 09/504,631

Attorney Docket No.: 2000P07463US03

REMARKS

Upon entry of the instant amendment, claims 1-5, 7, and 9-13 are pending. Claims 1, 5, 7, 9, and 13 have been amended to more particularly point out Applicants' invention.

Claims 1, 9, and 13 have been rejected under 35 U.S.C. §103 as being anticipated by Dobson et al., U.S. Patent No. 6,377,683 ("Dobson") in view of McNair, U.S. Patent No. 5,504,810 ("McNair"). Applicants respectfully submit that the claimed invention is not taught, suggested, or implied by Dobson or McNair, either singly or in combination.

As discussed in the Specification, prior echo cancellation system typically do not compensate for multiple far end echo sources. The present invention, however, provides a system and method for determining and compensating for far end echo sources and, in certain embodiments, multiple sources.

Thus, claim 1 has been amended to recite "a signal detector adapted to receive a signal, the signal including a data component and a plurality of echo components, said plurality of echo components comprising a plurality of far end echo components resulting from multiple far end echo sources, said data component comprising a return signal from a remote modem of a sinusoidal training signal transmitted from the modem;" and "an echo cancellation unit adapted to cancel a plurality of echoes resulting from multiple far end echo sources at said modem once said delays have been identified;" claim 9 has been amended to recite "receiving a signal at a modem, the signal including a data component received from a remote modem and a plurality of far end echo components resulting from multiple far end echo sources, the data component comprising a training sinusoid transmitted from the modem to the remote modem;" and "canceling one or more far end echoes resulting from said multiple far end echo sources at said modem once said delays have been identified;" and claim 13 has been amended to recite "detecting a return signal at the local modem, said return signal comprising said training signal and a plurality of far end echo components resulting from multiple far end echo sources" and "compensating for said plurality of far

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end echo components resulting from said multiple far end echo sources at said local modem."

In contrast, as acknowledged in the Official Action, Dobson does not appear to time intervals between peaks in a return signal component or include a timing unit for such a purpose. Instead, Dobson provides for an echo cancellation scheme at a modem that performs a spectral analysis on an outgoing signal and an incoming signal to determine an echo and a channel response. However, in doing so, Dobson does not time the intervals between peaks:

In operation, Dobson's method involves "transmitting a training signal and receiving a corresponding echo signal. The echo signal is then converted to the frequency domain and compared to the transmitted signal. . . [A] ratio of the converted echo signal to the frequency domain representation of the transmitted signal is formed." Col. 7, lines 46-54.

McNair is relied on for allegedly teaching timing echo peaks for echo cancellation. Applicants respectfully submit that McNair relates to a completely different art and has nothing to do with echo cancellation. McNair relates to a fraud detection hardware system 214 that operates outside a signal path and remote from an echo canceller 212. While the fraud detection hardware 214 times echo peaks, nowhere does McNair contain any hint that (a) the peaks can be of a return signal including echo components; (b) that the delays in the peaks are useful for echo cancellation; or (c) that the echo cancellation can be performed at a local modem as a result of the peak delay detection in the return signal, as generally recited in the claims at issue.

This is apparent because McNair has nothing to do with a return signal, as generally recited in the claims at issue. McNair's echo canceller 212 is provided in a transmission path remote from the sending device (telephone 204) and the receiving device (e.g., international gateway switch 202). It is not, however, located at a sending device, such as a modem, as generally recited in the claims at issue. Thus, McNair and Dobson are related to two completely different problems.

Even assuming, however, that one were motivated to combine the references,

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Applicants respectfully submit that the combination would not result in the present invention without the improper use of hindsight. Dobson relates to a "low complexity frequency domain echo canceller" that performs its functions as discussed above; there is no reason for Dobson to determine intervals between peaks of a training signal and multiple far end echo signals. Adding in the system of McNair could result in the present invention only if the present invention itself were (improperly) used as a template. Because neither Dobson nor McNair relate to transmitting a training signal, such as a sinusoid, or determining and canceling echo from peak delays in a received signal resulting from multiple far end echo sources, the Examiner is respectfully requested to reconsider and withdraw the rejection.

Claims 2-5, 7, and 10-12 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Dobson in view of McNair and further in view of Walsh et al., U.S. Patent No. 5,515,398 ("Walsh"). Applicants respectfully submit that the claimed invention is not taught, suggested, or implied by Dobson, McNair or Walsh, either singly or in combination. Dobson and McNair have been discussed above. Walsh is relied on merely for allegedly teaching transmission of a sinusoid at a given frequency. However, like Dobson and McNair, Walsh has nothing to do with timing peaks in a return sinusoid signal. Indeed, Walsh has nothing to do with a return signal or echo cancellation. Walsh provides for sending a "probing signal" from a modem 20 to a modem 16. The probing signal is then measured and analyzed at *modem 16* (see, e.g., col. 5, lines 46-52), not modem 20 (i.e., the sending modem). Thus, like Dobson and McNair, Walsh does not appear to provide for analysis of a return sinusoidal signal, as generally recited in the claims at issue. As such, the Examiner is respectfully requested to reconsider and withdraw the rejection.

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For all of the above reasons, Applicants respectfully submit that the application is in condition for allowance, which allowance is earnestly solicited.

Respectfully requested,

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